



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/362,022	07/27/1999	ROBERT J. MEYER	D/96602Q1	6313

7590

06/16/2004

JOHN E BECK  
XEROX CORPORATION  
XEROX SQUARE 20A  
ROCHESTER, NY 14644

EXAMINER
----------

VIDA, MELANIE M

ART UNIT	PAPER NUMBER
----------	--------------

2626

DATE MAILED: 06/16/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/362,022

Applicant(s)

MEYER ET AL.

Examiner

Melanie M Vida

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>Z</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement(s) (IDS) submitted on 3/31/04 has been considered by the examiner and is attached to this office action.

### ***Response to Amendment***

2. This action is responsive to an amendment filed 3/31/04. Claims 1-17 are pending. Applicants have amended independent claims, 1, 9, and 13. Applicant's have also amended dependent claims 10-12, and 15-17. The Examiner has received the Applicant's simulation and reviewed it prior to examination of the amended claims.

### ***Response to Arguments***

3. Applicant's arguments, see Paper No. 9, page 8, first paragraph, filed 3/31/04, with respect to the rejection(s) of claim(s) 9 and 13 under 35 USC 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. Further, on page 9, second paragraph, with respect to the rejection(s) of claim(s) 1-3 under 35 USC 103(a), However, upon further consideration, a new ground(s) of rejection of Abe in view of Suzuki is applied below. This action is made final because the applicant's have amended the subject matter for the independent claims to include additional subject matter that required the Examiner to conduct a further search and consideration.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1-17** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. **Claim 1, 9, and 13** are rejected because it is unclear to the Examiner, after thoroughly reviewing the specification, whether the original pixels have been already been halftoned, prior to substituting or embedding the auxiliary pixels or whether the invention claims to substitute auxiliary pixels so as to remove halo problems or edge displacement prior to halftoning the image cell.

7. **Claims 2-8, 10-12, and 14-17** are rejected for depending on unclear claim language in claims 1, 9, and 13.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 1-3, 9, and 13-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe, US-PAT-NO: 5,740,330, (hereinafter, Abe) in view of Suzuki, et al. US-PAT-NO: 5,299,308, (hereinafter, Suzuki).

Art Unit: 2626

Regarding, **claim 1**, as best understood from the claim language, Abe teaches that the contours of image elements, such as a character, are improved by alleviating jaggedness in the form of serrate edges and obtain a good quality image output from a low-resolution printer, which reads on “an improved font”, (col. 13, lines 17-19, and lines 55-61). Abe teaches of a halftone cell, in the background of the invention, wherein the dotted image in figures 11C, and 11D, correspond to the halftone cells in figures 11A and 11B, (col. 3, lines 66 through col. 4, lines 16). Abe teaches of an initial mass of pixels or a pixel group wherein black pixels (1) have been extracted, as shown in figure 12, from a group of white dots (2) which reads on, including a plurality of original pixels, (col. 8, lines 14-20). The jaggedness is alleviating by controlling the amount of light energy for each division of a pixel and uses a Bezzie curve or a B-spline curve to approximate the area of black pixels while deleting or adding sub-pixels to more closely approximate the inside of the curve enclosed area (4a) or (5a), as shown in figures 27 and 28, which reads on, to improve edge displacement or halo problems in the printing of the cell, (col. 8, lines 37-39; col. 11, lines 5-8, lines 30-45).

Abe does not expressly disclose, “substituting for one of the plurality of original pixels”.

However, Suzuki, as shown in figure 19C teaches of detecting an edge pixel, dividing the edge pixel into sub-pixels, and determining which sub-pixel to paint (i.e. to print), which reads on “at least one auxiliary pixel substituting for one of the plurality of original pixels of the halftone cell”, (col. 11, lines 11-13, and lines 16-19).

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify Abe’s pixel divisions for only the edge pixels as taught by Suzuki.

Art Unit: 2626

One of ordinary skill in the art would have been motivated to substitute edge pixels with sub-pixels in order to anti-alias process an edge, given the express suggestion of Suzuki, (col. 11, lines 11-13).

Regarding, **claims 2-3**, Abe teaches that sub-pixels can be added to the rightmost position or the leftmost position of the contour, which reads on “wherein the auxiliary pixel comprises a black auxiliary pixel” or “white auxiliary pixel”, respectively, (col. 8, lines 61-63, lines 59-67).

Regarding, **claims 9 and 13**, please refer to the corresponding rejection in claim 1.

Regarding, **claim 14**, Suzuki teaches a PDL controller (200) converts the PDL data received from a host computer (100) to black yellow, magenta, and cyan multi-level image data (i.e. halftone data), which reads on “step of processing comprises forming the halftone image using a processing system including a digital front end”, (col. 9, lines 29-39).

10. **Claims 4-8, 10-12, and 15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe, US-PAT-NO: 5,740,330 (hereinafter, Abe), and further in view of Suzuki, US-PAT-NO: 5,299,308, (hereinafter, Suzuki), as applied to claims 1, 9, and 14, respectively above, and further in view of Admission.

Abe in view of Suzuki teach the improved halftone in claim 1, claim 9, and claim 14 above, but fail to expressly disclose the following:

halftone cell is clustered dot type, (claim 4, line 2; claim 10, lines 2-3; claim 15, line 2);

halftone cell is a dispersed dot type, (claim 5, line 2; claim 11, line 2-3; claim 16, line 2);

halftone cell is a compact dot type, (claim 6, line 2);

halftone cell is a spiral-dot type, (claim 7, line 2);

halftone cell is a stochastic type (claim 8, line 2; claim 12, lines 2-3; claim 17, line 2);

Art Unit: 2626

However, the Admission teaches that a clustered dot type is a well-known method used in prior art for rendering a halftone image from continuous image in the specification, (page 12, lines 5-10). Second, the Admission teaches that a dispersed dot type is a well-known type of a halftone cell used in the image halftone art in the specification, (page 12, lines 5-10). Third, the Admission teaches that the clustered cell type may alternatively be a compact type dot, or a spiral-dot type because it is commonly known in the image halftone art as per the specification, (page 12, line 19). Fourth, the Admission teaches that the halftone cell may alternatively be a stochastic type as is commonly known in the image halftone art as per the specification, (page 12, lines 20-23).

At the time the invention was made, it would have been obvious to one of ordinary skill in the halftone reproduction art to modify Chung's teachings of embedding auxiliary pixels in an image to improve the evenness of toner deposition using alternative forms of the halftone cell such as the clustered cell types, or the halftone cell types mentioned above.

One of ordinary skill in the art would have been motivated to do this in order to provide various types of halftone cells, since some cells produce better with xerographic and electrostatically based printer technologies as disclosed by the applicant (page 12, lines 11-13).

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sakano, US-PAT-NO: 5,337,162, see figure 8 and the description in col. 7.

Art Unit: 2626

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie M Vida whose telephone number is (703) 306-4220.

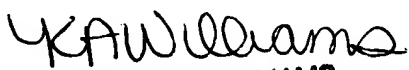
The examiner can normally be reached on 8:30 am 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A Williams can be reached on (703) 305-4863. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Art Unit: 2626

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**KIMBERLY WILLIAMS**  
**SUPERVISORY PATENT EXAMINER**

Melanie M Vida  
Examiner  
Art Unit 2626

MMV



June 10, 2004